The National Science Foundation (NSF) is an independent federal agency created by Congress in 1950 to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense. NSF’s vital role is to support basic research and researchers who create knowledge that transforms the future.
Expanding the Frontiers of Science

NSF’s Convergence Accelerator builds upon basic research and discovery to accelerate solutions toward societal impact. The program funds teams to solve societal challenges through convergence research and innovation. The Woods Hole Oceanographic Institute is leading one such team — Digital Reefs — to leverage digital twin technology, gaming engine platforms and cloud analytics to transform the way humans access and use scientific data and models to solve societies’ most pressing environmental problems. Digital Reefs delivers intuitive, immersive four-dimensional visualizations of each coral reef ecosystem and a suite of interactive user-inspired tools to empower millions of stakeholders around the world with the most effective decision-making tools in a rapidly changing ocean. Within five years, Digital Reefs — scaled to the globally interconnected Digital Reefs Network — will be the go-to tool for effective management, conservation and restoration of coral reefs in the 21st century, and for communicating and sharing data, knowledge and experience. Ultimately, the Digital Reefs technology framework will provide the blueprint for expansion of digital twin technology oceanwide.

STEM Education and Broadening Participation

Through an NSF Scholarships in Science, Technology, Engineering, and Mathematics program award, Bridgewater State University will provide scholarships to 35 full-time students pursuing bachelor’s degrees in chemistry, computer science, geological sciences, mathematics, photonics and optical engineering, and physics. The overall goal is to increase STEM degree completion of low-income, high-achieving undergraduates with demonstrated financial need. First-year students in one of three cohorts will receive four years of scholarship. Additional targeted support includes mentorship and engaging the students in activities (e.g., undergraduate research and internships) known to improve STEM student outcomes. A unique feature of the project is its use of a partnership with a professional organization that specifically serves individuals from groups that are often underrepresented in STEM. In doing so, the project expects to better understand how partnerships with professional organizations can aid in students’ STEM identity and retention. This understanding has implications for both generating new knowledge and sharing that knowledge with other institutions and professional organizations interested in improving STEM student outcomes.

Regional Innovation Engines

The NSF Engines program envisions fostering flourishing regional innovation ecosystems across the country, providing a unique opportunity to spur economic growth in regions that have not fully participated in the technology boom of the past few decades. The NSF Engines program uniquely harnesses the nation’s science and technology research and development enterprise and regional-level resources. NSF Engines can catalyze robust partnerships rooted in scientific and technological innovation to positively impact the economy within a geographic region, address societal challenges, and advance national competitiveness. Find potential NSF engines in your state.